

What is claimed is:

1. A developing method for a substrate to be processed, comprising the steps of:

collecting an alkaline developing fluid which has been used in a development process against a resist film on the substrate to be processed;

measuring a resist concentration of the developing fluid collected in the collecting step;

calculating an alkaline concentration corresponding to a measured value of the resist concentration for realizing a uniformity in development;

controlling the component of the developing fluid in order to accomplish the alkaline concentration calculated in the calculating step; and

reusing the developing fluid the component of which is controlled for the development process.

2. A developing method as claimed in Claim 1, wherein the resist concentration is measured by using an absorption photometry, at the measuring step of the resist concentration.

3. A developing method as claimed in Claim 2, wherein the measuring step of the resist concentration comprises the steps of:

diluting the developing fluid with a predetermined solvent by a designated mixing ratio thereby providing a diluted developing fluid;

measuring the resist concentration of the diluted developing fluid by using the absorption photometry; and

converting a measured value of the resist concentration of the diluted developing fluid to a measured value of the resist concentration of the developing fluid before diluting.

4. A developing method as claimed in Claim 1, wherein the controlling step of the component of the developing fluid comprises the steps of:

measuring the alkaline concentration of the developing fluid; and

adding a concentrated developing solution and/or a solvent into the developing fluid until a measured value of the alkaline concentration of the developing fluid accords with the alkaline concentration calculated at the calculating step.

5. A developing method as claimed in Claim 1, wherein the developing fluid is a TMAH solution, while the alkaline concentration is a TMAH concentration.

6. A developing method for a substrate to be processed, comprising the steps of:

collecting an alkaline developing fluid which has been used in a development process against a photo resist film on the substrate to be processed;

measuring an alkaline concentration of the developing fluid collected in the collecting step;

calculating a resist concentration corresponding to a measured value of the alkaline concentration for realizing a uniformity in development;

controlling the component of the developing fluid in order to accomplish the resist concentration calculated in the calculating step; and

reusing the developing fluid the component of which is controlled for the development process.

7. A developing method as claimed in Claim 6, wherein the alkaline concentration is measured by using a conductivity measuring method at the measuring step of the alkaline concentration.

8. A developing method as claimed in Claim 6, wherein the controlling step of the component of the developing fluid comprises the steps of:

measuring the resist concentration of the developing fluid; and

adding a concentrated developing solution and/or a solvent into the developing fluid until a measured value of the resist concentration of the developing fluid accords with the resist concentration calculated at the calculating step.

9. A developing method as claimed in Claim 6, wherein the developing fluid is a TMAH solution, while the alkaline concentration is a TMAH concentration.

10. A developing apparatus for a substrate to be processed, comprising:

a processing part for performing a development process to dissolve an unnecessary portion in a photo resist film on the substrate to be processed by an alkaline developing fluid;

a collecting part for collecting the developing fluid used in the development process at the processing part;

a resist-concentration measuring part for measuring a resist concentration of the developing fluid collected;

an alkaline-concentration calculating part for calculating an alkaline concentration corresponding to a measured value of the resist concentration for realizing a uniformity in development;

a developer blending part for controlling the component of the developing fluid in order to accomplish the alkaline concentration calculated; and

a developer supply part for supplying the processing part with the developing fluid whose

component has been controlled in the developer blending part, in order to reuse the developing fluid.

11. A developing apparatus as claimed in Claim 10, wherein the developer blending part includes:

- a developer container for accommodating the developing fluid therein;

- a concentrated developer supplier for supplying the developer container with a concentrated developing solution;

- a solvent supplier for supplying the developer container with a solvent;

- a developer discharging unit for discharging the developing fluid from the developer container;

- an alkaline-concentration measuring unit for measuring an alkaline concentration of the developing fluid in the developer container;

- a control unit for controlling the quantity of the developing fluid discharged from the developer container, the quantity of the concentrated developing solution supplied from the concentrated developer supplier into the developer container and/or the quantity of the solvent supplied from the solvent supplier into the developer container, so that a measured value of the alkaline concentration obtained by the alkaline-concentration measuring unit accords with the alkaline concentration calculated by the alkaline-concentration calculating part.

12. A developing apparatus for a substrate to be processed, comprising:

- a processing part for performing a development process to dissolve an unnecessary portion in a photo resist film on the substrate to be processed by an alkaline developing fluid;

- a collecting part for collecting the developing

fluid used in the development process at the processing part;

an alkaline-concentration measuring part for measuring an alkaline concentration of the developing fluid collected;

a resist-concentration calculating part for calculating a resist concentration corresponding to a measured value of the alkaline concentration for realizing a uniformity in development;

a developer blending part for controlling the component of the developing fluid in order to accomplish the resist concentration calculated; and

a developer supply part for supplying the processing part with the developing fluid whose component has been controlled in the developer blending part, in order to reuse the developing fluid.

13. A developing apparatus as claimed in Claim 12, wherein the developer blending part comprises:

a developer container for accommodating the developing fluid therein;

a concentrated developer supplier for supplying the developer container with a concentrated developing solution;

a solvent supplier for supplying the developer container with a solvent;

a developer discharging unit for discharging the developing fluid from the developer container;

a resist-concentration measuring unit for measuring a resist concentration of the developing fluid in the developer container;

a control unit for controlling the quantity of the developing fluid discharged from the developer container, the quantity of the concentrated developing solution supplied from the concentrated developer supplier into the developer container and/or the quantity of the

solvent supplied from the solvent supplier into the developer container, so that a measured value of the resist concentration obtained by the resist-concentration measuring unit accords with the resist concentration calculated by the resist-concentration calculating part.